

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

SEMICAPS PTE LTD,

Plaintiff,

v.

HAMAMATSU CORPORATION, et al.,

Defendants.

Case No. [17-cv-03440-DMR](#)

**AMENDED ORDER DENYING
DEFENDANT'S MOTION TO DISMISS**

Re: Dkt. No. 49

Plaintiff SEMICAPS Pte Ltd. (“SEMICAPS”) filed this patent case against Defendants Hamamatsu Corporation, Hamamatsu Photonics K.K., and Photonics Management Corp. (collectively, Defendants or “Hamamatsu”), alleging that Hamamatsu infringes the claims of U.S. Patent No. 7,623,982 (the “’982 patent”), which relates to testing of electronic circuits using a laser. Hamamatsu moves to dismiss the complaint, arguing that the asserted claims are invalid because they claim patent-ineligible subject matter. [Docket No. 49.] The court held a hearing on July 11, 2019. For the following reasons, the motion is denied.¹

I. BACKGROUND

A. The ‘982 Patent

SEMICAPS is the owner by assignment of the ‘982 patent titled, “Method of Testing an Electronic Circuit and Apparatus Thereof.” Compl. ¶ 11, Ex. A (‘982 Patent). The ‘982 patent was issued by the United States Patent and Trademark Office (“USPTO”) on November 24, 2009, and “relates generally to semiconductor processing, and more particularly to a method of testing an electronic circuit, as well as to a respective apparatus,” ‘982 Patent 1:6-8, in order to “determine the location of defects on the semiconductor circuit.” Opp’n 3.

¹ The court issues this amended order in accordance with its November 5, 2019 order denying Hamamatsu’s motion for leave to file a motion for reconsideration. [Docket No. 75.] The amended portions of the order appear in ***bold italic*** type.

1 SEMICAPS describes the relevant technology as follows: newly-fabricated integrated
2 semiconductor circuits are “typically tested by connecting them to electronic test equipment that
3 applies test signals to each integrated circuit and receives output signals from the circuit as a
4 result.” *Id.* While this method of testing can reveal defects, it does not identify the location of the
5 defect in the integrated circuit. In order to determine the location of the defect, fabricators use
6 “failure analysis systems . . . to perform fault localization testing,” which can be done using lasers
7 in scanning microscopes. *Id.* at 3-4.

8 The ‘982 patent’s background information describes the problem the patent seeks to solve.
9 It explains that “conventional laser induced techniques generally involve using a scanned laser
10 beam, typically in the infrared frequency range, to stimulate integrated circuit failures which are
11 sensitive to thermal or carrier stimulations.” ‘982 Patent at 1:16-19. These techniques include
12 Optical Beam Induced Resistance Change (“OBIRCH”), Thermal Induced Voltage Alteration
13 (“TIVA”), and Differential Resistance Measurement (“DReM”). *Id.* at 1:22-27. However,
14 advances in integrated circuit technology, including “the use of more metallization layers and new
15 low k inter-layer dielectric materials with lower thermal conductivity,” have reduced the laser
16 coupling efficiency, which in turn reduces the detection sensitivity. *Id.* at 1:28-33. The inventors
17 explain that “conventional approaches” to improve the detection sensitivity of laser induced
18 techniques have not been entirely successful. For example, increasing the power of the laser beam
19 used “in order to compensate for the reduced laser coupling efficiency . . . may not be desirable,”
20 because “there may be potential laser induced damage on the integrated circuit under test when the
21 power of the laser beam used is too high.” *Id.* at 1:38-49. Another approach is to use “a pulsed
22 laser in conjunction with a lock-in amplifier,” which increases detection sensitivity. *Id.* at 1:50-
23 52. However, lock-in amplifiers are “not used in a real-time integrated circuit testing
24 environment” because “accurate calibration and fine control of the lock-in amplifier parameters is
25 typically difficult to achieve in practice.” *Id.* at 1:62-67.

26 The ‘982 patent attempts to increase detection sensitivity in a laser-based fault detection
27 system without increasing the power of the laser beam or using lock-in amplifiers. ‘982 Patent at
28 10:19-46. According to the patent, “[t]he method comprises radiating a laser beam onto the

electronic circuit, and determining a plurality of samples of a response signal output by the electronic circuit during the period when the laser beam is radiated.” ‘982 Patent, Abstract. A signal processor “process[es] the sample measurements of the response signal of the electronic circuit under test” by “accumulat[ing] the plurality of samples to generate a value, and then generat[ing] a test result based on the value generated.” ‘982 Patent at 3:65-4:2. Based on the generated value, a fault on the electronic circuit may appear as a bright spot, bright line, or bright area at a pixel location corresponding to the location of the fault on the electronic circuit. *Id.* at 4:16-24, 4:34-38, 5:12-16.

The ‘982 patent includes 25 claims. SEMICAPS alleges that Hamamatsu infringes at least claims 4-7 and 21-25. Compl. ¶ 13. At the hearing SEMICAPS represented that it also asserts claims 8 and 17. *See* Mot. 12 n.3; Opp’n 1. Claims 4-8 and claim 17 pertain to a method of testing an electronic circuit, while claims 21-25 describe a related apparatus.

1. Claims 4-8 and Claim 17

Claims 4-8 depend from independent Claim 1, which states:

1. A method of testing an electronic circuit, comprising:
 - radiating a laser beam onto the electronic circuit,
 - determining a plurality of samples of a response signal output by the electronic circuit during the period when the laser beam is radiated,
 - accumulating the plurality of samples to generate a value, and
 - generating a test result based on the value.

‘982 Patent at 10:59-67.

Claims 4-8 and claim 17 add the following limitations to Claim 1:

4. The method of claim 1, wherein the laser beam is a pulsed laser beam.
5. The method of claim 4, wherein the frequency of sampling of the response signal is higher than the frequency of the pulsed laser beam.
6. The method of claim 4, wherein the frequency of the pulsed laser beam is in the range from about 50 Hz to about 50 kHz.
7. The method of claim 4, wherein the frequency of sampling of the response signal is in the range from about 100 kHz to about 80 MHz.

8. The method of claim 1, wherein accumulating the plurality of samples is performed after a predetermined time delay from the start of the period when the laser beam is radiated.

17. The method of claim 1, wherein another plurality of samples of another response signal output by the electronic circuit during a period when the laser beam is not radiated is determined, the other plurality of samples is accumulated to generate another value and the test result is generated based on the value and the other value.

‘982 Patent at 11:8-22, 12:4-9.

2. Claims 21-25

Claim 21 is an independent claim and describes an apparatus:

21. An apparatus, comprising:

a laser beam source, wherein the laser beam source radiates a laser beam onto the electronic circuit,

a control system operable to direct the laser beam source to dwell on a location on the electronic circuit,

a measuring circuit, wherein the measuring circuit determines a plurality of samples of a response signal output by the electronic circuit during the period when the laser beam is radiated, and

a signal processor, wherein the signal processor accumulates the plurality of samples to generate a value, and generates a test result based on the value.

‘982 Patent at 12:19-31. Claims 22-25 depend from claim 21. They recite:

22. The apparatus of claim 21, wherein the control system is operable to move the laser beam source according to a pattern over a plurality of locations on the electronic circuit.

23. The apparatus of claim 21, wherein the laser beam is a pulsed laser beam.

24. The apparatus of claim 23, wherein the frequency of sampling is higher than the frequency of the pulsed laser beam.

25. The apparatus of claim 23, wherein the frequency of the pulsed laser beam is in the range from about 50 Hz to about 50 kHz and the frequency of sampling is in the range from about 100 kHz to about 80 MHz.

Id. at 12:32-43.

B. Alleged Infringement

SEMICAPS alleges that Hamamatsu infringes the asserted claims either literally or under the doctrine of equivalents. Compl. ¶ 13. It contends that Hamamatsu infringes the claims “by

making, using, selling, offering to sell, and/or importing into the United States Hamamatsu’s M10383 Digital Lock-in Kit (‘M10383’) . . . , testing equipment incorporating or retrofitted to include the M10383, and other technology that incorporates the infringing aspects of the M10383 . . . (the ‘Accused Products’).” *Id.*; Compl. Ex. B. According to SEMICAPS, Hamamatsu’s PHEMOS and iPHEMOS series of emission microscopes use OBIRCH for semiconductor failure analysis and incorporate the M10383, and “compete with SEMICAPS’ Scanning Optical Microscopes.” *Id.* at ¶¶ 14, 15; Compl. Ex. C. In its complaint, SEMICAPS alleges that the Accused Products infringe claims 4-7 and 21-25 of the ‘982 patent by performing the method specified in the patent and using the apparatus of the asserted claims when conducting OBIRCH analysis. *Id.* at ¶¶ 20-54.

C. Procedural History

SEMICAPS filed this lawsuit on June 14, 2017. On September 19, 2017, the court granted Hamamatsu’s unopposed motion to stay the case pending inter partes review (“IPR”) proceedings initiated by Hamamatsu challenging the validity of the ‘982 patent. [Docket No. 28.] This case resumed following the issuance of two Final Written Decisions by the Patent Trial and Appeal Board (“PTAB”) in the IPR proceedings. Hamamatsu now moves to dismiss.²

II. LEGAL STANDARDS

A motion to dismiss under Rule 12(b)(6) tests the legal sufficiency of the claims alleged in

² Hamamatsu asks the court to take judicial notice of the prosecution history of the ‘982 patent. [Docket No. 50 (Chu Decl., May 23, 2019) ¶ 4, Ex. 1 (Prosecution History).] SEMICAPS did not object. The court takes judicial notice of the prosecution history pursuant to Federal Rule of Evidence 201(b)(2), as it is a public record that “consists of the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005). *See, e.g., Coinstar, Inc. v. Coinbank Automated Sys., Inc.*, 998 F. Supp. 1109, 1114 (N.D. Cal. 1998) (granting request for judicial notice of patent file histories).

SEMICAPS submitted additional material outside the pleadings. [Docket No. 53-1 (Marton Decl., June 6, 2019).] These appear to be Hamamatsu’s IPR petitions challenging the validity of the claims, a declaration submitted in support of the petitions by Hamamatsu’s expert, and the PTAB’s final written decisions on the petitions. It appears that SEMICAPS contends that these materials are part of the prosecution history and are thus subject to judicial notice, although it does not expressly request that the court take judicial notice of them. As Hamamatsu did not object to the inclusion of these materials as part of the prosecution history, the court takes judicial notice of them.

the complaint. *See Parks Sch. of Bus., Inc. v. Symington*, 51 F.3d 1480, 1484 (9th Cir. 1995). When reviewing a motion to dismiss for failure to state a claim, the court must “accept as true all of the factual allegations contained in the complaint,” *Erickson v. Pardus*, 551 U.S. 89, 94 (2007) (per curiam) (citation omitted), and may dismiss a claim “only where there is no cognizable legal theory” or there is an absence of “sufficient factual matter to state a facially plausible claim to relief.” *Shroyer v. New Cingular Wireless Servs., Inc.*, 622 F.3d 1035, 1041 (9th Cir. 2010) (citing *Ashcroft v. Iqbal*, 556 U.S. 662, 677-78 (2009); *Navarro v. Block*, 250 F.3d 729, 732 (9th Cir. 2001)) (quotation marks omitted). A claim has facial plausibility when a plaintiff “pleads factual content that allows the court to draw the reasonable inference that the defendant is liable for the misconduct alleged.” *Iqbal*, 556 U.S. at 678 (citation omitted). In other words, the facts alleged must demonstrate “more than labels and conclusions, and a formulaic recitation of the elements of a cause of action will not do.” *Bell Atl. Corp. v. Twombly*, 550 U.S. 554, 555 (2007) (citing *Papasan v. Allain*, 478 U.S. 265, 286 (1986)); *see Lee v. City of L.A.*, 250 F.3d 668, 679 (9th Cir. 2001), overruled on other grounds by *Galbraith v. Cty. of Santa Clara*, 307 F.3d 1119 (9th Cir. 2002).

As a general rule, a court may not consider “any material beyond the pleadings” when ruling on a Rule 12(b)(6) motion. *Lee*, 250 F.3d at 688 (citation and quotation marks omitted). However, “a court may take judicial notice of ‘matters of public record,’” *id.* at 689 (citing *Mack v. S. Bay Beer Distrib.*, 798 F.2d 1279, 1282 (9th Cir. 1986)), and may also consider “documents whose contents are alleged in a complaint and whose authenticity no party questions, but which are not physically attached to the pleading,” without converting a motion to dismiss under Rule 12(b)(6) into a motion for summary judgment. *Branch v. Tunnell*, 14 F.3d 449, 454 (9th Cir. 1994), overruled on other grounds by *Galbraith*, 307 F.3d at 1125-26. The court need not accept as true allegations that contradict facts which may be judicially noticed. *See Mullis v. U.S. Bankr. Court*, 828 F.2d 1385, 1388 (9th Cir. 1987).

III. DISCUSSION

Hamamatsu argues that the complaint should be dismissed because the asserted claims of the ‘982 patent are invalid under 35 U.S.C. § 101 for failing to claim patent-eligible subject

matter. Section 101 patent eligibility is a question of law that may be resolved on a motion to dismiss. *In re Roslin Inst. (Edinburgh)*, 750 F.3d 1333, 1335 (Fed. Cir. 2014); *Genetic Techs. Ltd. v. Merial LLC*, 818 F.3d 1369, 1373-74 (Fed. Cir. 2016). SEMICAPS does not object to adjudication of the Section 101 challenge at this early stage of the proceedings, and the parties agree that no disputes of fact exist that would otherwise prevent a ruling.³

A. Subject Matter Eligibility

Section 101 of the Patent Act defines the subject matter that is eligible for patent protection. *Bilski v. Kappos*, 561 U.S. 593, 601 (2010). It provides that “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101.⁴ Under well-settled law, “this provision contains an important implicit exception: [l]aws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice Corp. Pty. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014). These categories are not patentable because “they are the basic tools of scientific and technological work.” *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012) (quotation omitted). “[M]onopolization of those tools through the grant of a patent might tend to impede innovation more than it would tend to promote it.” *Id.* However, the Supreme Court has also cautioned that “too broad an interpretation of this exclusionary principle could eviscerate patent law,” *id.*, because “[a]t some level, ‘all inventions . . . embody, use, reflect, rest upon, or apply laws of

³ Notwithstanding its agreement that Hamamatsu’s Section 101 challenge is ripe for adjudication on the pleadings, SEMICAPS argues that if there is a dispute about the scope of the terms “determining” and “accumulating” as used in claim 1, the court should construe those claims prior to ruling on the motion. See Opp’n 9 n.1. As the court finds that the asserted claims are not directed to a patent-ineligible concept, it need not construe the “determining” and “accumulating” terms at this time. See *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass’n*, 776 F.3d 1343, 1349 (Fed. Cir. 2014) (“Although the determination of patent eligibility requires a full understanding of the basic character of the claimed subject matter, claim construction is not an inviolable prerequisite to a validity determination under § 101.”).

⁴ “The § 101 patent-eligibility inquiry is only a threshold test. Even if an invention qualifies as a process, machine, manufacture, or composition of matter, in order to receive the Patent Act’s protection the claimed invention must also satisfy ‘the conditions and requirements of this title.’ [35 U.S.C.] § 101.” *Bilski*, 561 U.S. at 602. “Those requirements include that the invention be novel, see [35 U.S.C. §] 102, nonobvious, see [35 U.S.C. §] 103, and fully and particularly described, see [35 U.S.C. §] 112.” *Id.*

nature, natural phenomena, or abstract ideas.” *Alice*, 573 U.S. at 217 (quoting *Mayo*, 566 U.S. at 71). “Thus, an invention is not rendered ineligible for patent simply because it involves an abstract concept,” and courts must “tread carefully in construing this exclusionary principle lest it swallow all of patent law.” *Id.*

The Supreme Court has articulated a two-part test for determining whether a claim’s subject matter falls outside Section 101. *See Alice*, 573 U.S. at 217; *Mayo*, 566 U.S. 77-78. This “framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts” proceeds in two steps as follows:

First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts. If so, we then ask, “[w]hat else is there in the claims before us?” To answer that question, we consider the elements of each claim both individually and “as an ordered combination” to determine whether the additional elements “transform the nature of the claim” into a patent-eligible application. We have described step two of this analysis as a search for an “‘inventive concept’”—*i.e.*, an element or combination of elements that is “sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.”

Alice, 573 U.S. at 217-18 (internal citations omitted, alterations in original).

“Although the two steps in the *Alice* framework involve overlapping scrutiny of the content of the claims, the Supreme Court’s formulation makes clear that the first-stage filter is a meaningful one, sometimes ending the § 101 inquiry.” *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1258 (Fed. Cir. 2017) (internal quotation marks and citation omitted). “The ‘directed to’ inquiry, therefore, cannot simply ask whether the claims *involve* a patent-ineligible concept, because essentially every routinely patent-eligible claim involving physical products and actions *involves* a law of nature and/or natural phenomenon—after all, they take place in the physical world.” *Id.* (emphasis in original). Instead, courts must consider the claims “in their entirety to ascertain whether their character as a whole is directed to excluded subject matter.” *FairWarning IP, LLC v. Iatric Systems, Inc.*, 839 F.3d 1089, 1094 (Fed. Cir. 2016) (quoting *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1312 (Fed. Cir. 2016)).

The Federal Circuit has “described the first-stage inquiry as looking at the focus of the

claims, their character as a whole, and the second-stage inquiry (where reached) as looking more precisely at what the claim elements add—specifically, whether, in the Supreme Court’s terms, they identify an ‘inventive concept’ in the application of the ineligible matter to which (by assumption at stage two) the claim is directed.” *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016) (internal quotation marks and citations omitted).

B. Representative Claims

As noted, SEMICAPS asserts claims 4-8 and claim 17, all of which depend from claim 1. SEMICAPS also asserts claims 21-25. Although neither party identified representative claims in their briefing, the parties agreed at the hearing that claims 1 and 21 are representative for purposes of the Section 101 analysis. Accordingly, the court will treat claims 1 and 21 as representative. *See Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass’n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014) (affirming district court’s treatment of two claims as representative, “because all the claims are ‘substantially similar and linked to the same abstract idea.’”). Those claims state the following:

Claim 1:

A method of testing an electronic circuit, comprising:
radiating a laser beam onto the electronic circuit,
determining a plurality of samples of a response signal output by the electronic circuit during the period when the laser beam is radiated,
accumulating the plurality of samples to generate a value, and
generating a test result based on the value.

Claim 21:

An apparatus, comprising:
a laser beam source, wherein the laser beam source radiates a laser beam onto the electronic circuit,
a control system operable to direct the laser beam source to dwell on a location on the electronic circuit,
a measuring circuit, wherein the measuring circuit determines a plurality of samples of a response signal output by the electronic circuit during the period when the laser beam is radiated, and

a signal processor, wherein the signal processor accumulates the plurality of samples to generate a value, and generates a test result based on the value.

C. *Alice* Step One

At the first step, the court must determine whether the claims at issue are “directed to” a “patent-ineligible concept[.]” *Alice*, 573 U.S. at 217. As the Federal Circuit has explained, “the ‘directed to’ inquiry applies a stage-one filter to claims, considered in light of the specification, based on whether ‘their character as a whole is directed to excluded subject matter.’” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016) (citation omitted).

Hamamatsu argues that claims 1 and 21 are directed to the abstract idea of “collecting data and processing it to generate a test result.” Mot. 9. SEMICAPS disputes Hamamatsu’s framing, and contends that claims 1 and 21 are directed to a specific technological problem, namely, “improving fault detection sensitivity in laser-based testing of integrated circuits.” SEMICAPS asserts that its patent “describes and claims a specific solution” to that problem. Opp’n 11-12.

“The Supreme Court has not established a definitive rule to determine what constitutes an ‘abstract idea’ sufficient to satisfy the first step of the *Mayo/Alice* inquiry.” *Enfish*, 822 F.3d at 1334. Courts generally begin by “compar[ing] claims at issue to those claims already found to be directed to an abstract idea in previous cases.” *Id.* (citing *Alice*, 573 U.S. at 221 (“we need not labor to delimit the precise contours of the ‘abstract ideas’ category in this case. It is enough to recognize that there is no meaningful distinction between the concept of risk hedging in *Bilski* and the concept of intermediated settlement at issue here.”)); *see also Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1294 (Fed. Cir. 2016) (“the decisional mechanism courts now apply is to examine earlier cases in which a similar or parallel descriptive nature can be seen—what prior cases were about, and which way they were decided.”)).

Neither party cites cases that analyze claims pertaining to a method or apparatus for conducting laser-induced testing of integrated circuits, and indeed, the court could not find any. Instead, Hamamatsu argues that this case is similar to those that found that the claims are abstract where they are directed to some combination of collecting and/or analyzing information and presenting the results of those processes; Hamamatsu relies primarily on *Electric Power Group*.

1 In *Electric Power Group*, the Federal Circuit analyzed a claim for a “method of detecting events
2 on an interconnected electric power grid in real time over a wide area and automatically analyzing
3 the events on the interconnected electric power grid.” 830 F.3d at 1351. The method included the
4 following steps: 1) receiving a plurality of data streams collected in real time at geographically
5 distinct points over the interconnected electric power grid; 2) receiving data from other sources on
6 the electric power grid; 3) receiving data from non-power grid sources; 4) detecting and analyzing
7 events in real time from the disparate sources based on an analysis of the measurements in the
8 data; 5) displaying the results of the analysis and other information from the data; 6) displaying
9 “concurrent visualization of measurements” from the data; 7) accumulating and updating in real
10 time the measurements from the data sources; and 8) combining the data into “a composite
11 indicator of power grid vulnerability.” *Id.* at 1351-52.⁵

12
13 ⁵ The representative claim discussed in *Electric Power Group* was as follows:

14 12. A method of detecting events on an interconnected electric power
15 grid in real time over a wide area and automatically analyzing the
16 events on the interconnected electric power grid, the method
17 comprising:

18 receiving a plurality of data streams, each of the data streams
19 comprising sub-second, time stamped synchronized phasor
20 measurements wherein the measurements in each stream are collected
21 in real time at geographically distinct points over the wide area of the
22 interconnected electric power grid, the wide area comprising at least
23 two elements from among control areas, transmission companies,
24 utilities, regional reliability coordinators, and reliability jurisdictions;

25 receiving data from other power system data sources, the other power
26 system data sources comprising at least one of transmission maps,
27 power plant locations, EMS/SCADA systems;

28 receiving data from a plurality of non-grid data sources;

detecting and analyzing events in real-time from the plurality of data
streams from the wide area based on at least one of limits, sensitivities
and rates of change for one or more measurements from the data
streams and dynamic stability metrics derived from analysis of the
measurements from the data streams including at least one of
frequency instability, voltages, power flows, phase angles, damping,
and oscillation modes, derived from the phasor measurements and the
other power system data sources in which the metrics are indicative
of events, grid stress, and/or grid instability, over the wide area;

displaying the event analysis results and diagnoses of events and

The Federal Circuit found that the patent was not directed to patentable subject matter because the focus of the asserted claims was “on collecting information, analyzing it, and displaying certain results of the collection and analysis.” *Id.* at 1353. Noting that “[i]nformation as such is an intangible,” the court explained that it has “treated collecting information, including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas.” *Id.* (citations omitted). The court has also “treated analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category.” *Id.* at 1354 (citations omitted). Finally, it has “recognized that merely presenting the results of abstract processes of collecting and analyzing information, without more (such as identifying a particular tool for presentation), is abstract as an ancillary part of such collection and analysis.” *Id.* (citations omitted). The *Electric Power Group* court concluded that the claims were focused on a combination of “abstract-idea processes”: “[t]he advance they purport to make is a process of gathering and analyzing information of a specified content, then displaying the results, and not any particular assertedly inventive technology for performing those functions.” *Id.* See also *FairWarning*, 839 F.3d at 1092-94 (holding that invention “relat[ing] to a system and method of detecting fraud and/or misuse in a computer environment based on analyzing data such as in log

associated ones of the metrics from different categories of data and the derived metrics in visuals, tables, charts, or combinations thereof, the data comprising at least one of monitoring data, tracking data, historical data, prediction data, and summary data;

displaying concurrent visualization of measurements from the data streams and the dynamic stability metrics directed to the wide area of the interconnected electric power grid;

accumulating and updating the measurements from the data streams and the dynamic stability metrics, grid data, and non-grid data in real time as to wide area and local area portions of the interconnected electric power grid; and deriving a composite indicator of reliability that is an indicator of power grid vulnerability and is derived from a combination of one or more real time measurements or computations of measurements from the data streams and the dynamic stability metrics covering the wide area as well as non-power grid data received from the non-grid data source.

830 F.3d at 1351-52.

files, or other similar records, including user identifier data,” was directed to combination of abstract ideas, namely, “collecting and analyzing information to detect misuse and notifying a user when misuse is detected.”).

Hamamatsu asserts that claims 1 and 21 are directed to collecting data (a plurality of samples) in a specified form, then accumulating the samples to derive a value or metric, and using the value to generate a test result. According to Hamamatsu, as with the claims at issue in *Electric Power Group*, the asserted claims of the ‘982 patent are directed to abstract ideas. *See Electric Power*, 830 F.3d at 1354.

Hamamatsu also argues that the inclusion of hardware and computer components in the asserted claims does not change the abstract focus of the claims, citing *In re TLI Communications LLC Patent Litigation*, 823 F.3d 607, 612 (Fed. Cir. 2016). In *TLI*, the Federal Circuit considered whether a patent relating to “an apparatus for recording of a digital image, communicating the digital image from the recording device to a storage device, and to administering the digital image in the storage device” claimed patent-eligible subject matter under section 101. *Id.* at 609.⁶ The

⁶ The representative claim addressed in *TLI* read:

17. A method for recording and administering digital images, comprising the steps of:

recording images using a digital pick up unit in a telephone unit,

storing the images recorded by the digital pick up unit in a digital form as digital images,

transmitting data including at least the digital images and classification information to a server, wherein said classification information is prescribable by a user of the telephone unit for allocation to the digital images,

receiving the data by the server,

extracting classification information which characterizes the digital images from the received data, and

storing the digital images in the server, said step of storing taking into consideration the classification information.

823 F.3d at 610.

1 court found “that the patent-in-suit claims no more than the abstract idea of classifying and storing
2 digital images in an organized manner.” *Id.* While the claims recited the use of a telephone unit
3 and a server, the court explained that “the specification makes clear that the recited physical
4 components merely provide a generic environment in which to carry out the abstract idea of
5 classifying and storing digital images in an organized manner.” *Id.* at 611. The court rejected the
6 plaintiff’s argument that the claims were “directed to a specific improvement to computer
7 functionality,” concluding that they were instead “directed to the use of conventional or generic
8 technology in a nascent but well-known environment, without any claim that the invention reflects
9 an inventive solution to any problem presented by combining the two.” *Id.* at 612. The *TLI* court
10 noted that the specification failed to provide technical details for the physical components, and
11 instead described them “in purely functional terms.” *Id.* “In other words, the focus of the patentee
12 and of the claims was not on an improved telephone unit or an improved server.” *Id.* at 613.
13 Accordingly, the court found that the claims were directed to an abstract idea under step one. *Id.*

14 Hamamatsu notes that claim 21 describes an apparatus that includes four basic
15 components: a laser beam source, control system, measuring circuit, and signal processor. It
16 contends that the ‘982 patent describes how these components are features of conventional laser-
17 induced testing systems and are well known in the prior art, including in U.S. Patent No.
18 6,897,664 (the “‘664 patent”), which was issued in 2005 and is discussed in the ‘982 Patent. *See*
19 ‘982 Patent at 1:12-15, 1:38-67, 3:36-48 (discussing ‘664 Patent). Hamamatsu argues that the
20 claims at issue are not directed to any improvement in the functioning of the conventional
21 components themselves, such as an improved laser beam source or measuring circuit. Rather,
22 according to Hamamatsu, like the telephone unit and server at issue in *TLI*, the components in the
23 ‘982 patent are used “merely [as] a conduit for the abstract idea.” As such, Hamamatsu argues
24 that the inclusion of these components does not change the focus or overall character of the
25 claims. Mot. 11 (citing *TLI*, 823 F.3d at 612 (“the telephone unit itself is merely a conduit for the
26 abstract idea of classifying an image and storing the image based on its classification.”)).

27 SEMICAPS disputes Hamamatsu’s characterization of the asserted claims. It argues that
28 Hamamatsu oversimplifies them by describing them as being directed to accumulating data and

analyzing the data to generate a test result. SEMICAPS contends that claims 1 and 21 are directed to a new system for laser-based fault detection in integrated circuits that has increased sensitivity and is therefore an improvement over prior art systems. SEMICAPS distinguishes *Electric Power Group* and *TLI* by arguing that the representative claims of the ‘982 patent are directed to an “inventive technology” for performing certain functions, i.e., a specific machine for testing integrated circuits, and not to the abstract idea of collecting and processing data and generating a result therefrom. *See* Opp’n 11. SEMICAPS argues that the asserted claims therefore are similar to those found by the Federal Circuit to be directed to patent-eligible subject matter where the focus of the claims was “on the specific asserted improvement” of the relevant technology. *See, e.g., Enfish*, 822 F.3d at 1335-36; *McRO*, 837 F.3d at 1314.⁷

For example, in *Enfish*, the court analyzed claims directed to an “innovative logical model for a computer database,” namely, a “self-referential” table that functioned differently from conventional database structures. 822 F.3d at 1330, 1337. The court held that the claims were not directed to an abstract idea because they focused “on the specific asserted improvement in computer capabilities (i.e., the self-referential table for a computer database),” instead of “a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.” *Id.* at 1335-36. In *McRO*, the claims at issue provided a method for automating the lip synchronization and facial expressions of 3-D animated characters. 837 F.3d at 1303-07. The court held that the claims were not abstract because they “focused on a specific asserted improvement in computer animation, i.e., the automatic use of rules of a particular type.” *Id.* at 1314. Noting that “[a] patent may issue ‘for the means or method of producing a certain result, or effect, and not for the result or effect produced,” the court defined the inquiry as examining

⁷ SEMICAPS devotes several pages of its brief to the argument that the asserted claims are “novel” and survived IPR proceedings. *Id.* at 1-2, 6-7, 14-15. However, section 101 “is a general statement of the type of subject matter that is eligible for patent protection ‘subject to the conditions and requirements of this title.’ Specific conditions for patentability follow,” including section 102, which “covers in detail the conditions relating to novelty.” *Diamond v. Diehr*, 450 U.S. 175, 189 (1981). “The question therefore of whether a particular invention is novel is wholly apart from whether the invention falls into a category of statutory subject matter.” *Id.* (quotation and citation omitted). Accordingly, SEMICAPS’s arguments regarding the novelty of the ‘982 patent are not relevant to the section 101 analysis.

“whether the claims in these patents focus on a specific means or method that improves the relevant technology or are instead directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery.” *Id.*

SEMICAPS also cites *Thales Visionix Inc. v. United States*, 850 F.3d 1343 (Fed. Cir. 2017) and *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014) to support its argument that the ‘982 patent, which is directed to a specific solution to a technological solution, is “the antithesis of abstract.” *See* Opp’n 9-11. In *Thales*, the claims disclosed “an inertial tracking system for tracking the motion of an object relative to a moving reference frame” that used mathematical equations to determine the object’s orientation. 850 F.3d at 1344-45. The court held that the use of mathematical equations, which are themselves not patent-eligible subject matter, “d[id] not doom the claims to abstraction” because the claims were “not merely directed to the abstract idea” of using such equations. *Id.* at 1347-49. “Rather, the claims are directed to systems and methods that use inertial sensors in a non-conventional manner to reduce errors in measuring the relative position and orientation of a moving object on a moving reference frame.” *Id.* at 1348-49. The court concluded that “the claims seek to protect only the application of physics to the unconventional configuration of sensors as disclosed,” rather than claiming the equations themselves, and were thus not directed to an abstract idea. *Id.* at 1349.

In *DDR Holdings*, the Federal Circuit examined patents that claimed a solution to the problem of third-party merchants luring a host website’s visitor traffic away when visitors clicked on a merchant’s advertisement on the host site. 773 F.3d at 1248. The patents disclosed a system of generating and directing the visitor to “a composite web page that displays product information from the third-party merchant, but retains the host’s website’s ‘look and feel.’” *Id.* at 1248-49. The court explained that “the claims at issue . . . specify how interactions with the Internet are manipulated to yield a desired result” which “overrides the routine and conventional sequence of events ordinarily triggered by the click of a hyperlink.” *Id.* at 1259. It held that “the claimed solution amounts to an inventive concept for resolving [a] particular Internet-centric problem, rendering the claims patent-eligible.” *Id.*

Here, SEMICAPS argues that like the claims in *Enfish*, *McRO*, *Thales*, and *DDR*, the ‘982

1 patent is “a new and novel system that operates in a unique way to solve a technical problem” and
2 is thus “exactly the type of invention that is patent eligible.” Opp’n 2, 7. Specifically, it asserts
3 that the ’982 patent “is directed to a technological problem: improving fault detection sensitivity
4 in laser-based testing of integrated circuits,” and that it “describes and claims a specific solution”
5 to that problem. Opp’n 11-12.

6 The court concludes that the asserted claims of the ’982 patent are not directed to an
7 abstract idea. Hamamatsu’s characterization of the ’982 patent as directed to the processes of
8 collecting and analyzing information and presenting the results of those processes is overly
9 reductive. It ignores the technical context of the patent and the claimed improvements over the
10 prior art. The ’982 patent explains how advancements in integrated circuits, including the use of
11 more metallization layers and materials with lower thermal conductivity, have resulted in the need
12 for increased fault detection sensitivity. ***It describes the problems inherent with existing***
13 ***approaches and sets forth a new system for testing integrated circuits that improves detection***
14 ***sensitivity of response signals.*** Claim 1 describes the claimed method, which involves radiating a
15 laser beam onto the electronic circuit, determining a plurality of samples of a response signal
16 output during the period the laser is radiated, accumulating the plurality of samples to generate a
17 value, and generating a test result based on the value. Claim 21 sets forth the claimed apparatus,
18 comprised of a laser beam source to radiate a laser beam onto the electronic circuit, a control
19 system to direct the laser beam source to dwell on a certain location on the electronic circuit, a
20 measuring circuit to determine a plurality of samples, and a signal processor to accumulate the
21 plurality of samples to generate a value and a corresponding test result.

22 ***These claims describe a method and apparatus that enable the detection of response***
23 ***signals due to improved detection sensitivity, and the corresponding analysis of such response***
24 ***signals in order to determine the location of a fault on an electronic circuit.*** In this way, the
25 asserted claims of the ’982 patent are distinguishable from the claims at issue in *Electric Power*
26 *Group* and *TLI*. Specifically, the asserted claims in *Electric Power Group* involved “receiving”
27 data from specified sources, using the data to “detect[] and analyz[e] events in real time,”
28 “displaying the event analysis results” from the data, “accumulating and updating the

measurements from the data streams,” and “deriving a composite indicator of reliability[.]” 830 F.3d at 1351-52. In other words, the claimed “method of detecting events on an interconnected electric power grid” was based upon accumulating *existing data* from disparate sources, analyzing it, and displaying the results. *See id.* In contrast, the method disclosed in the ‘982 patent is not merely a process of collecting readily observable data in the form of response signals and analyzing it to localize faults on the circuit. ***Instead, the asserted claims of the ‘982 patent describe a method of achieving improved detection sensitivity of response signals.*** They are therefore directed to a “new and useful technique” for performing the specified task of using a laser to perform fault localization testing of an electronic circuit. *See Thales*, 850 F.3d at 1349 (holding that “claims directed to a new and useful technique for using sensors to more efficiently track an object on a moving platform” were not directed to an abstract idea).

TLI is also inapposite. In *TLI*, the court explained that the patent was not “directed to a specific improvement to computer functionality,” but was instead “directed to the use of conventional or generic technology,” such as a telephone and a server, “in a nascent but well-known environment, without any claim that the invention reflects an inventive solution to any problem presented by combining the two.” 823 F.3d at 612. Here, the claims of the ‘982 patent do not simply use conventional components to implement the abstract ideas of gathering and analyzing existing data. ***Rather, they claim a step-by-step method to improve an existing technological process by which response signals may be detected and analyzed to pinpoint the location of a fault on an electronic circuit.*** “[A] new combination of steps in a process may be patentable even though all the constituents of the combination were well known and in common use before the combination was made.” *Diehr*, 450 U.S. at 187-89 (claimed method for curing synthetic rubber that improved upon prior art molding methods by constantly measuring actual temperature inside mold, recalculating ideal cure time, and automatically opening press when ideal cure time had elapsed was patent-eligible process); *see also Thales*, 850 F.3d at 1347-48 (“In terms of the modern day *Alice* test, the *Diehr* claims were directed to an improvement in the rubber curing process, not a mathematical formula.”).

In response, Hamamatsu contends that SEMICAPS’s argument relies on features and

1 purported benefits of the ‘982 patent that are not recited in the claims and are therefore irrelevant
2 to the Section 101 analysis. It cites *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149
3 (Fed. Cir. 2016), and *Versata Development Group, Inc. v. SAP America, Inc.*, 793 F.3d 1306, 1335
4 (Fed. Cir. 2015), for the proposition that the court must “focus on the language of the Asserted
5 Claims themselves” in conducting the Section 101 analysis. SEMICAPS disputes the premise of
6 Hamamatsu’s argument. It argues that at step one of the *Alice* framework, the court may consider
7 the patent’s specifications along with the language of the claims to determine whether the asserted
8 claims are directed to patent-ineligible subject matter. According to SEMICAPS, the
9 specifications of the ‘982 patent describe the problem with conventional laser-based testing of
10 electronic circuits and explain how the claimed invention seeks to increase detection sensitivity
11 without increasing the power of the laser beam used or using lock-in amplifiers. It further
12 contends that claims 1 and 21 themselves specify the method and means by which the patent
13 accomplishes this goal.

14 At the hearing, Hamamatsu maintained its position that the court must focus on the
15 language of the claims themselves, but conceded that the court may consider the patent’s
16 specifications at step one of the *Alice* framework.⁸ This is consistent with the Federal Circuit’s
17 guidance in *Enfish*, in which it explained that “the ‘directed to’ inquiry applies a stage-one filter to
18 claims, *considered in light of the specification*, based on whether ‘their character as a whole is
19 directed to excluded subject matter.’” 822 F.3d at 1335 (emphasis added; citation omitted). *See*
20 *also Berkheimer v. HP, Inc.*, 881 F.3d 1360, 1367 (Fed. Cir. 2018) (holding that asserted claim for
21 method of archiving an item in a computer processing system was directed to abstract ideas of
22 parsing and comparing data, describing how the “specification explains that the parser ‘determines
23 and extracts components of the standardized document or item representation’ and reassembles the

24
25
26 ⁸ The parties agreed that at step two of the *Alice* framework, where the court “consider[s] the
27 elements of each claim both individually and ‘as an ordered combination’ to determine whether
28 the additional elements ‘transform the nature of the claim’ into a patent eligible application,”
Berkheimer v. HP Inc., 881 F.3d 1360, 1367 (Fed. Cir. 2018) (quoting *Alice*, 573 U.S. at 217), the
court may look only to the language of the claims themselves.

components ‘into composite output files.’”).⁹

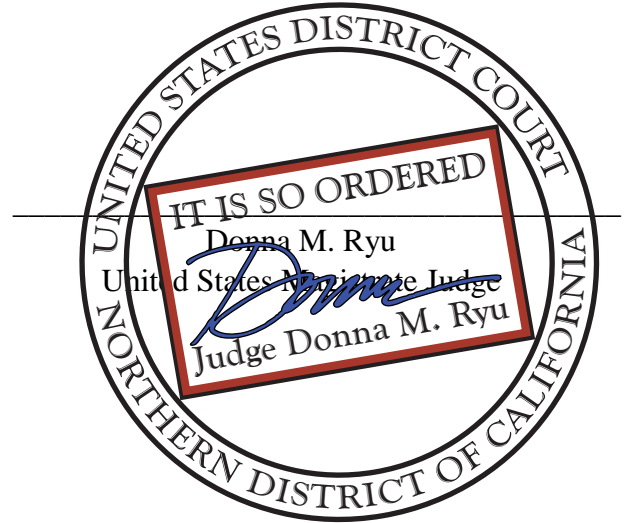
In sum, considering the challenged claims in their entirety, the court concludes that claims 1 and 21 are not directed to an abstract idea. Rather, the claims “focus on a specific means or method that improves the relevant technology” and are therefore directed to patent-eligible subject matter under Section 101. *See McRO*, 837 F.3d at 1314. Given this finding, the court need not proceed to step two of the *Alice* analysis. *See Enfish*, 822 F.3d at 1339 (if the court concludes that the asserted claims “are not directed to an abstract idea under step one of the *Alice* analysis,” it need “not proceed to step two of that analysis.” (citing *Alice*, 573 U.S. at 217)).

IV. CONCLUSION

For the foregoing reasons, the court finds that the asserted claims of the ‘982 patent are directed to patent-eligible subject matter under 35 U.S.C. § 101. Hamamatsu’s motion to dismiss is denied.

IT IS SO ORDERED.

Dated: November 6, 2019



⁹ As noted, Hamamatsu cited two cases, *Synopsys* and *Versata*, as support for the proposition that a court may not consider a patent’s specification at step one of the *Alice* inquiry. Neither case stands for that proposition. Instead, *Synopsys* and *Versata* held that patentholders may not recast the focus of an asserted claim in a way that is unsupported by the claim itself, for purposes of determining whether it is directed to patent-ineligible subject matter. In this case, the specifications of the ‘982 patent describe the existing problem with the use of lasers to test electronic circuits and the shortcomings of the prior art given technological advancements, and explain how the claimed method and apparatus seek to solve the problem. Claims 1 and 21 then specify the method and means by which the patent accomplishes this goal.